

PATENT APPLICATION

CHEMILUMINESCENT JEWELRY AND ACCESSORIES

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CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of the filing of U.S. Provisional Patent Application Serial No. 60/249,404, entitled "Lighted Jewelry," filed on November 15, 2000, and the specification thereof is incorporated herein by reference.

BACKGROUND OF THE INVENTION

Field of the Invention (Technical Field):

The present invention relates to jewelry and other clothing accessories utilizing chemiluminescence for decorative lighting.

Background Art:

This application is directed toward an improvement in typical jewelry or clothing accessory items by use of chemiluminescent materials to illuminate the accessory. Chemiluminescence has been known to exist in nature in organisms such as fireflies. Study of those naturally existing chemiluminescent organisms led to artificial chemiluminescence as described in U.S. Patent No. 3,597,362. U.S. Patent No. 3,576,987 went a step further to describe a now familiar chemiluminescent device that is associated with large luminescent tubes and loops often sold at fairs and parades.

Other patents have incorporated the art of chemiluminescence in some form into jewelry items. For example, U.S. Patent No. 4,061,910 discloses use of the chemiluminescent tube in the form of a closed loop designed for use as an article of jewelry, e.g. a necklace, bracelet, or ring. The patent further discloses use of an ornamental member for jewelry pieces which can be comprised of a light-transmitting material or opaque and preferably light-reflecting material used in combination with

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chemiluminescence, and further describes the ornamental member as comprising a flat smooth surface, a multi-faceted surface, a curved surface of any other configuration, design or representation. The '910 Patent generally describes use of a chemiluminescent tube having chambers separated by a fold which, upon releasing the fold, allow mixing of chemicals achieving chemiluminescence of the tube or use of two separate holding chambers with direct placement of the chemicals within the item to achieve the luminescence. Finally, the '910 Patent describes utilization of a replaceable chemiluminescent cartridge for insertion into a channel comprising a chamber for receipt of the cartridge formed in the rigid ornamental members. The '910 device uses chemiluminescent tubes as the sole ornamental portion of the jewelry or use of chemiluminescence for illuminating an ornamental article from within.

Additionally, prior art devices include a brooch as disclosed in U.S. Patent No. 2,374,375 and earrings as disclosed in U.S. Patent Nos. 3,968,357 and 3,814,926 that utilize traditional incandescent light for illumination of the jewelry items. The devices are illuminated by use of lighting fixtures encased entirely or partially within the jewelry item behind transparent materials. These devices have all the drawbacks of traditional incandescent lighting: requirement of a power source, bulk, garish lighting effects, and significant heat output. This makes them inconvenient, and in the case of heat output, sometimes dangerous for use in jewelry articles.

Prior art devices do not utilize chemiluminescent sticks for dramatic lighting techniques such as back lighting or disposing the chemiluminescent element as incorporated into the ornamental design, instead of merely lighting an ornamental element. The present invention overcomes the dangerous and inconvenient properties of prior art incandescent devices while utilizing chemiluminescence for new more dramatic jewelry lighting effects.

SUMMARY OF THE INVENTION (DISCLOSURE OF THE INVENTION)

The present invention is an accessory, such as jewelry (including an earring, necklace, pendant, brooch, ring, tiara or bracelet) or other accessories such as a purse, satchel, backpack, scarf or umbrella.

The present invention is a lighted accessory having at least one decorative element comprising at least one holding element which has openings that directly display a chemiluminescent article, and a functional element having at least one attachment member for use in disposing the accessory on a
5 wearer. Alternatively, instead of a holder with openings, the present invention may have an ornamental element.

The present invention may additionally comprise a reflective element made of metal, ceramic, or plastic which may have a finished surface that is hammered, ribbed, paneled, polished, or slightly
10 reflective. This reflective element may have a shape that is circular, elliptical, triangular, rectangular, polygonal or irregular, and may also have a planar or three-dimensional shaped configuration.

The holding element of the present invention may be partially opaque or translucent and may have a fixed translucent area.
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The accessory may have a closing member for the holding element that may comprise a tapered holder, balls, beads, or covers. Further, it may have multiple holding elements.
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The accessory may comprise an ornamental element that is opaque or translucent, including
20 semi-precious stones. The ornamental element may be back-lit by the chemiluminescent article.

A primary object of the present invention is to provide lighted jewelry and accessories with dramatic lighting effect.

25 Another object of the present invention is to provide safe lighting effects for jewelry and accessories.

A primary advantage of the present invention is a safe, soft light effect for accessories.

Other objects, advantages and novel features, and further scope of applicability of the present invention will be set forth in part in the detailed description to follow, taken in conjunction with the accompanying drawings, and in part will become apparent to those skilled in the art upon examination of the following, or may be learned by practice of the invention. The objects and advantages of the invention may be realized and attained by means of the instrumentalities and combinations particularly pointed out in the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are incorporated into and form a part of the specification, illustrate one or more embodiments of the present invention and, together with the description, serve to explain the principles of the invention. The drawings are only for the purpose of illustrating one or more preferred embodiments of the invention and are not to be construed as limiting the invention. In the drawings:

Fig. 1a is a perspective view depicting an earring embodiment of the present invention with a reflective setting and an ornamental member allowing direct observation of the chemiluminescent stick;

Fig. 1b is a side view of an earring embodiment of the present invention depicting insertion of the chemiluminescent stick;

Fig. 2 is a perspective view depicting a brooch embodiment of the present invention with a reflective setting and a perforated ornamental member;

Fig. 3a is a perspective view of a pendant embodiment of the present invention with a reflective setting and a gem setting aperture;

Fig. 3b is a side view of a pendant embodiment of the present invention with a reflective setting and a gem setting aperture;

Fig. 4a is a pendant embodiment of the present invention with a reflective setting and ornamental silhouette having the chemiluminescent stick interposed between;

Fig. 4b is a side view of the pendant embodiment of the present invention with a reflective setting and an ornamental silhouette having the chemiluminescent stick interposed between; and

Fig. 5 is a purse embodiment of the present invention utilizing a perforated upper clamp as an ornamental member.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

(BEST MODES FOR CARRYING OUT THE INVENTION)

The present invention is an improvement of jewelry and other accessories (hereinafter referred to as "jewelry" or "accessories" or "accessory") using chemiluminescence to give a decorative or safety lighting effect to the jewelry and other accessory articles. The luminous element is incorporated into the jewelry or accessory and is either directly visible as part of the decorative scheme, or is used to create a "back-lighting" effect.

As described in the background, chemiluminescent lighting devices are known, and have progressed to include very small chemiluminescent devices which can be activated by a simple bending or twisting action. Typical devices illuminate for approximately 2 to 8 hours, but it is conceivable that a device may illuminate longer. These comparatively small devices are manufacturable in many shapes, including the familiar sticks, as well as disks, spheres, or other polygonal shapes. Additionally, there are a multitude of potential colors, including but not limited to the familiar red, orange, yellow, green, blue, and violet colors.

Turning now to the figures, Figs. 1a and 1b depict a preferred earring embodiment of the present invention utilizing direct visibility of the chemiluminescent device as a part of the ornamentation. Earring 10 comprises decorative element 12 comprising holding element 14, reflective element 16, and functional element 18.

Holding element 14 is configured for receipt of chemiluminescent element 20. Stick shape 22 of chemiluminescent element 20 is preferred in this embodiment. Holding element 14 preferably extends for the full length of chemiluminescent element 20 and at least partially surrounds chemiluminescent element 20, but alternate embodiments may comprise holding element 14 wherein the element extends only partially along the length of chemiluminescent element 20 or even beyond chemiluminescent element 20, especially in embodiments utilizing stick configuration 22 of chemiluminescent element 20. Preferably, holding element 14 comprises a configuration such as a twisted or coiled material leaving spaces 24 between twists 26 or coils 28 of the material, or a material utilizing cutouts 30 (See Fig. 2) leaving apertures 32 within the material allowing direct observation of chemiluminescent element 20.

Additionally, a preferred embodiment includes reflective setting 16 disposed behind holding element 14 which directs the chemiluminescent light toward an observer. Reflective setting 16 preferably comprises a metal, ceramic or plastic material, but may comprise any material suitable for jewelry use (i.e., not harmful for skin contact), which has an at least slightly reflective surface. Reflective surfaces may be highly polished or only slightly reflective depending on the desired effect. The surface, in addition to being at least somewhat reflective, may be textured (e.g. hammered, ribbed, paneled, etc.) or smooth. Reflective setting 16 may be of any shape or configuration (e.g. circular, elliptical, triangular, rectangular, polygonal, irregular, etc. and flat or three-dimensional).

Earring 10, as depicted in Fig. 1b, preferably additionally comprises functional element 18. Functional element 18 contains all necessary elements for use. For example, earring 10 depicted in Fig. 1b, includes functional element 18 comprising post 34 and earring back 36.

Fig. 2 depicts a brooch embodiment of the present invention utilizing direct observation of the chemiluminescent device. Brooch 38 comprises decorative element 12 comprising holding element 14 and reflective element 16, and functional element 18.

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Holding element 14 is configured for receipt of chemiluminescent element 20. Stick shape 22 of chemiluminescent element 20 is depicted in this embodiment. However, holding element 14 may comprise different shapes for receipt of chemiluminescent element 20 in alternate embodiments, e.g. sphere-shaped, disc-shaped, or other polygonal shapes, etc. Holding element 14 preferably comprises either spaces 24 between twists 26 or coils 28 of the material comprising holding element 14, or cutouts 30 leaving apertures 32 within the material allowing direct observation of chemiluminescent element 20. Additionally, holding element 14 of all embodiments may additionally comprise closing mechanism 40. Closing mechanism 40 may utilize any simple mechanical device known in the art capable of safely containing chemiluminescent element 20 within holding element 14 while the jewelry item is being worn. For example, when holding element 14 is configured for receipt of stick configuration 22 of chemiluminescent element 20, the bottom of holding element 14 may be narrowed to serve as closing mechanism 40, preventing chemiluminescent element 20 from sliding through and falling out of holding element 14. Other embodiments may include other closing mechanisms 40, including but not limited to beads or balls 42 disposed within base 44 of holding element 14 or cover 46 disposed over end 48 of base 44.

In alternate embodiments, multiple holding elements 14 may be utilized for use of multiple chemiluminescent elements 20, or a single holding element 14 may have a sufficient volume to contain multiple chemiluminescent elements 20.

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Figs. 3a and 3b depict a pendant embodiment of the present invention utilizing chemiluminescence for fixed, direct lighting of a translucent ornamental element. Pendant 50 comprises

decorative element **12** comprising ornamental element **52** and reflective element **16**, and functional element **18** comprising holding element **14** and bail **54**.

As depicted in Fig. 3b, functional element **18** comprises holding element **14** and bail **54**. Bail **54** is preferably attached to the top of holding element **14** or disposed on an upper surface of reflective element **16** utilized for attachment to chain **56** for displaying pendant **50** by hanging from the neck of a user. Holding element **14** is configured for receipt of chemiluminescent element **18**. Holding element **14** preferably comprises an opaque casing **58** having a translucent portion **60** corresponding to placement of a semi-precious stone **62** in relation to translucent portion **60** and allowing light to transmit through ornamental element **52**. Translucent portion **60** includes embodiments utilizing transparent portion **60**, and embodiments wherein casing **58** is comprised entirely of translucent material, including embodiments utilizing transparent material. Translucent portion **60** may be comprised of any material commonly used in the chemiluminescent industry to allow transmission of light.

As seen in Fig. 3a, decorative element **12** comprises ornamental element **52** and reflective element **16**. Preferably, holding element **14** is disposed between and connected to ornamental element **52** and reflective element **16**. Ornamental element **52** preferably comprises semi-precious stone **62**. Semi-precious stone **62** includes all man-made or natural semi-precious stones and reasonable facsimiles, e.g. cubic zirconia, etc. In alternate embodiments, ornamental element **52** may comprise decorative shapes with some degree of translucence to allow light to shine through. Further embodiments will utilize an opaque ornamental element **52** wherein translucent portion **60** of holding element **14** will preferably be larger or comprise entire holding element **14** to allow greater light transmission to sufficiently back-light ornamental element **52**. It is preferred that reflective element **16** be utilized when an opaque ornamental element **52** is used. However, embodiments utilizing chemiluminescent back-lighting of an ornamental element without use of reflecting element **16** are envisioned. Further, use of reflective element **16** in conjunction with non-opaque ornamental elements **52** is also within the scope of the invention.

Figs. 4a and 4b depict a pendant embodiment of the present invention utilizing chemiluminescence for back-lighting an opaque ornamental element **52**. Pendant **50** comprises decorative element **12** comprising ornamental element **52** and reflective element **16**, and functional element **18** comprising holding element **14** and bail **54**.

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Figs. 5a and 5b depict a purse embodiment of the present invention utilizing direct visibility of the chemiluminescent device as a part of the ornamentation. Purse **64** comprises a decorative element **12** comprising holding element **14** and functional element **18**.

Holding element **14** of the preferred embodiment comprises a tubular upper purse frame **66**. A cylindrical frame utilizing a circular opening is depicted, however various shaped cylinders are envisioned (e.g., triangular, rectangular, elliptical, and polygonal). Purse frame **66** further comprises cutouts **30** leaving apertures **32** within the material allowing direct observation of chemiluminescent element **20**. Purse **64** further comprises functional elements **18** including a clasp disposed within purse frame **66** and the purse body **68** attached to a lower surface **70** of purse frame **66**. Further embodiments would include use of other decorative or functional frame locations of purses or other accessories (e.g., backpacks, satchels, scarf, shoe clips, umbrella handles, and the like).

Although the invention has been described in detail with particular reference to these preferred embodiments, other embodiments can achieve the same results. Variations and modifications of the present invention will be obvious to those skilled in the art and it is intended to cover in the appended claims all such modifications and equivalents. The entire disclosures of all references, applications, patents, and publications cited above are hereby incorporated by reference.